

FOR AN ADAPTIVE COMPUTING ENGINE

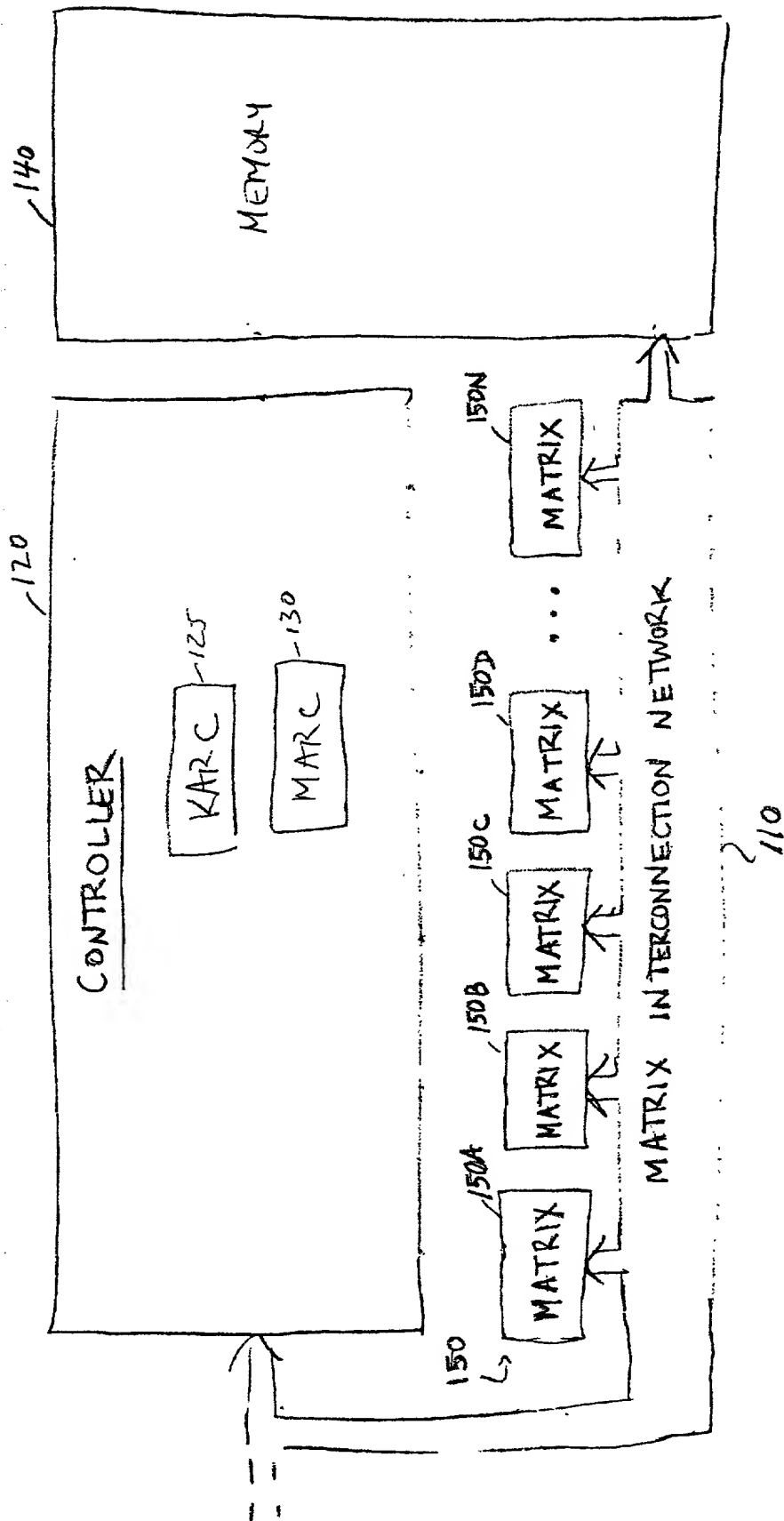


FIG. 1

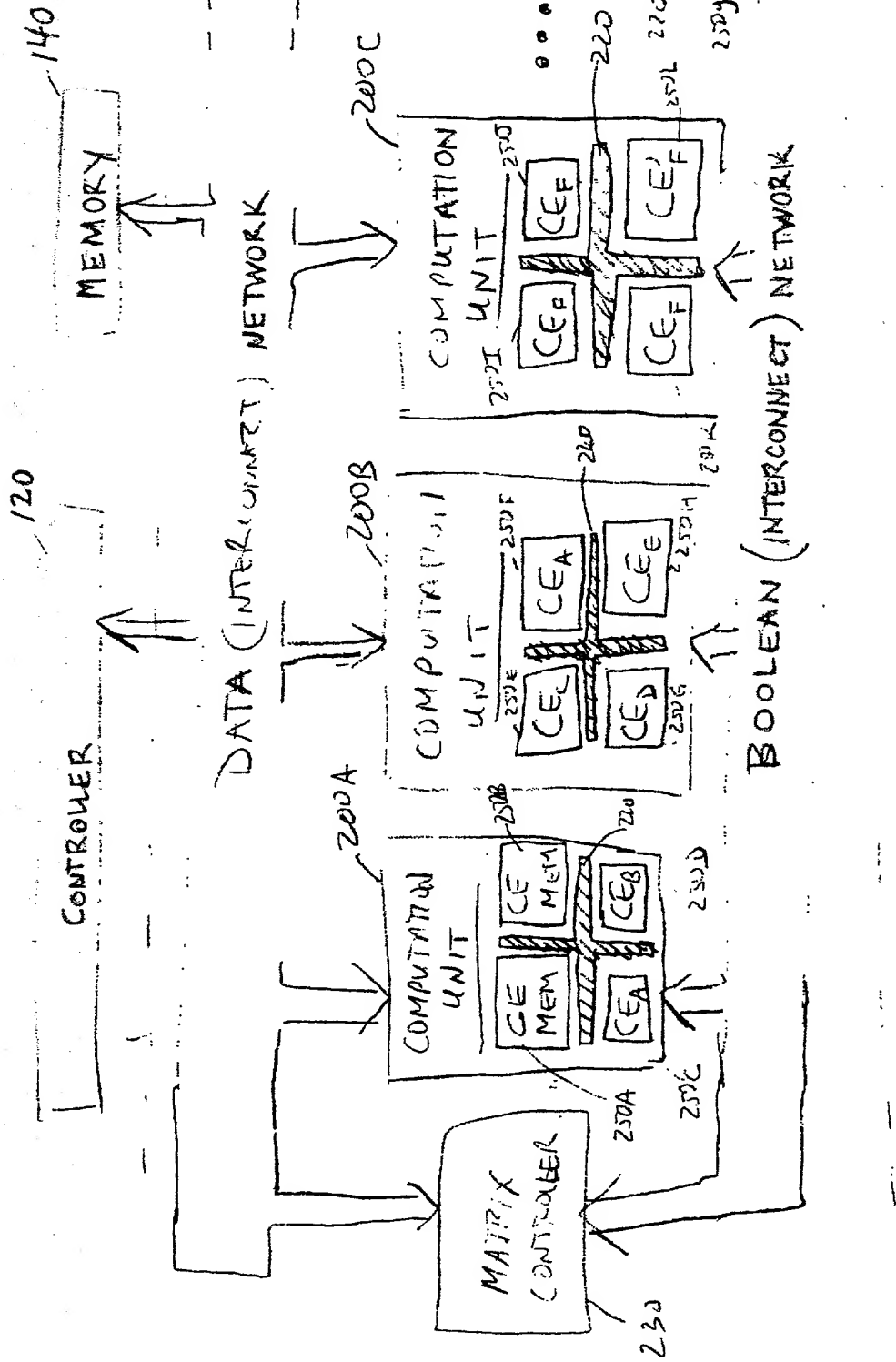


FIG. 2 is a block diagram of the system.

$$y[j] = \sum_{i=0}^j x[i], \quad j = 0, \dots, N-1; \quad N = 7$$

Fig. 3a

```

module partialSums (void)
{
    int16 x;
    int16 y = 0;
    const int16 N = 7;

    loop N {
        x = inputFIFO ();
        y += x;
        outputFIFO (y);
    }
}

```

Fig. 3b

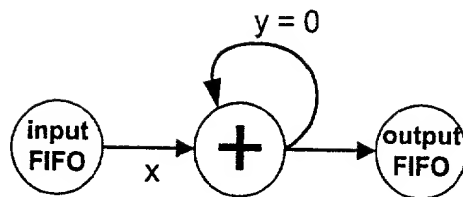
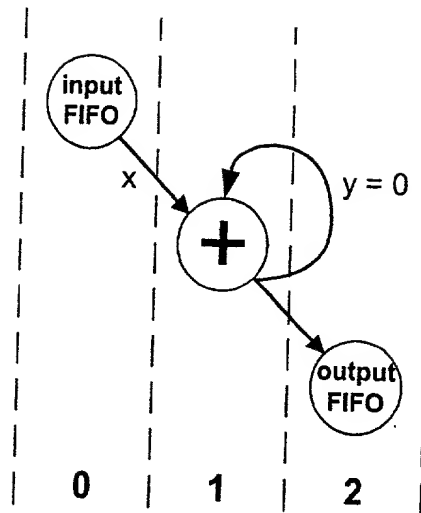


Fig. 3c

Input Unit (IU)

Arithmetic Unit (AU)

Output Unit (OU)



Cycle Number

Fig. 3a

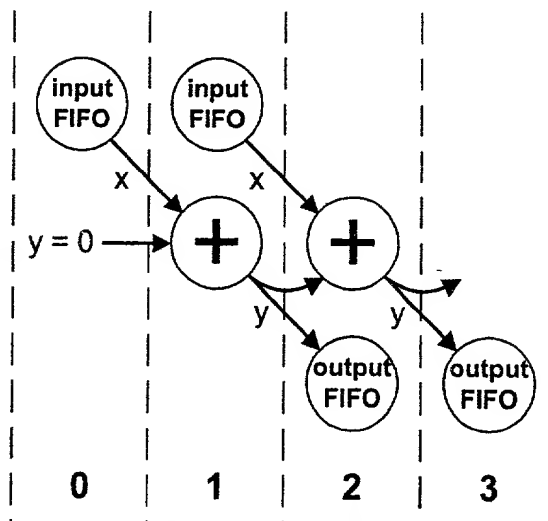
Instantiation
Number

0 1

Input Unit (IU)

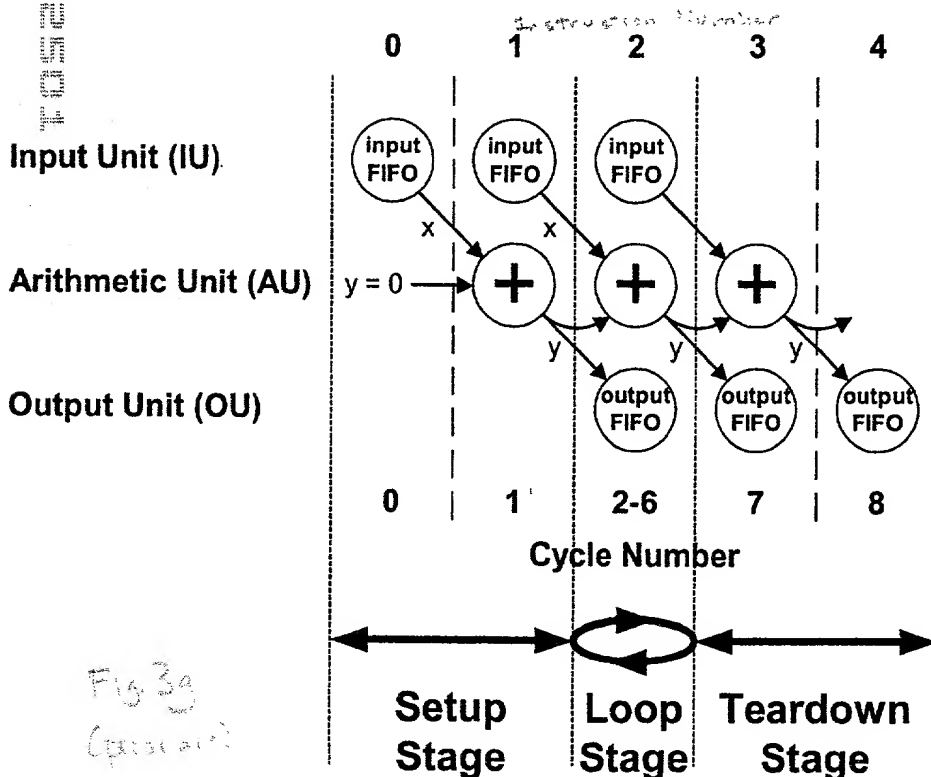
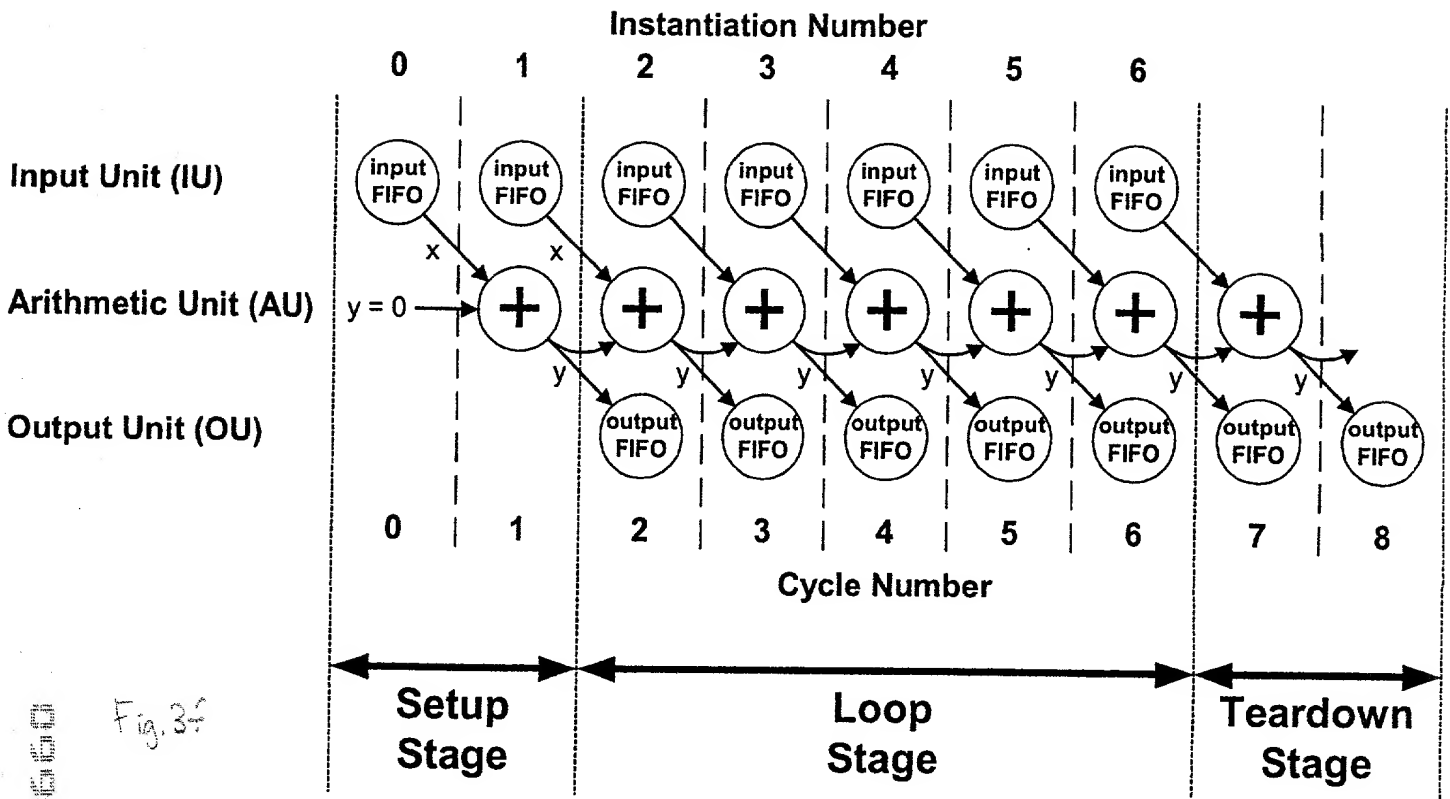
Arithmetic Unit (AU)

Output Unit (OU)



Cycle Number

Fig. 3b



e.g.

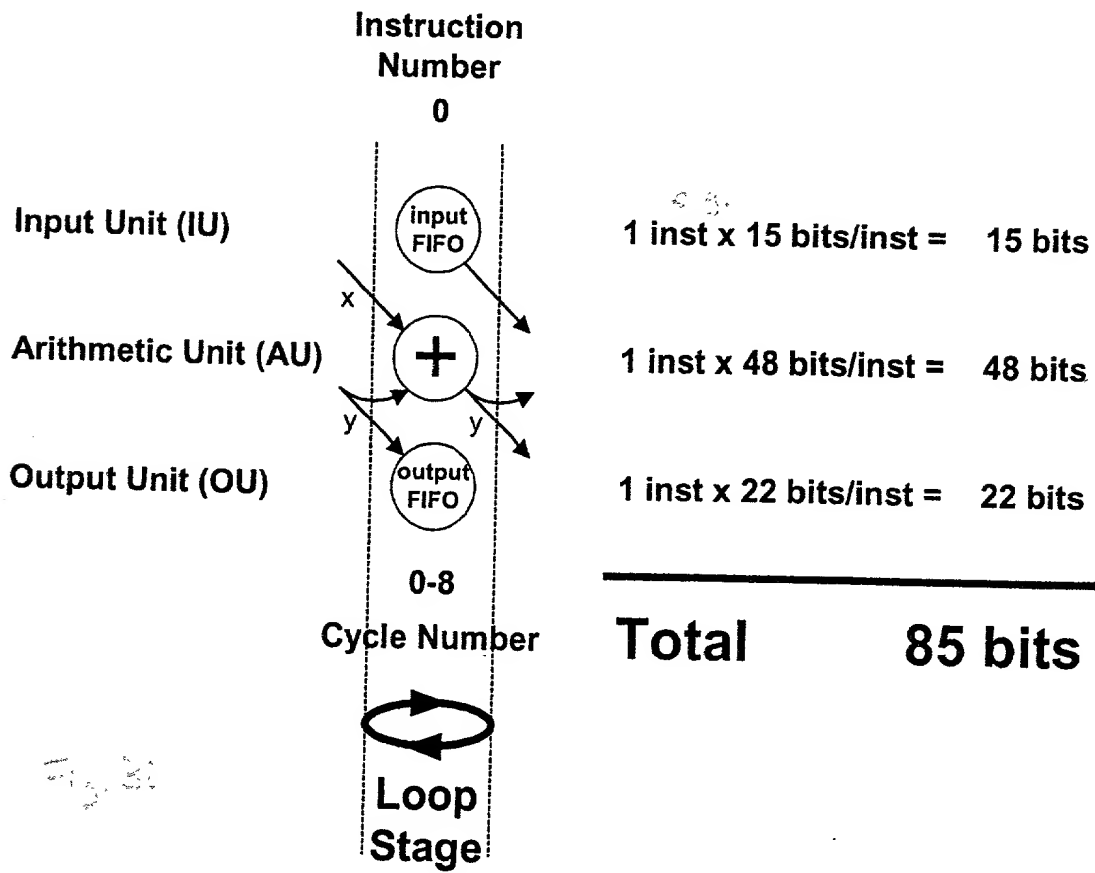
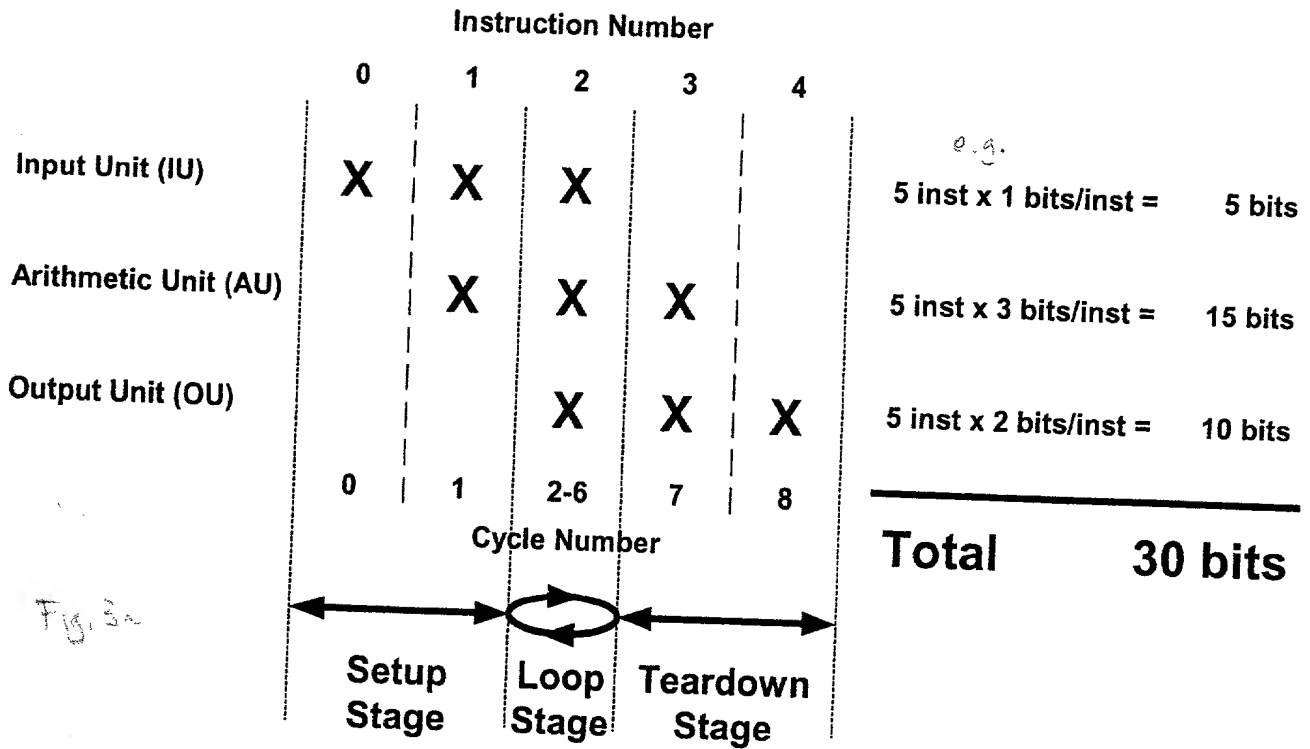
$$5 \text{ inst} \times 16 \text{ bits/inst} = 80 \text{ bits}$$

$$5 \text{ inst} \times 51 \text{ bits/inst} = 255 \text{ bits}$$

$$5 \text{ inst} \times 24 \text{ bits/inst} = 120 \text{ bits}$$

Total 455 bits

TOP SECRET



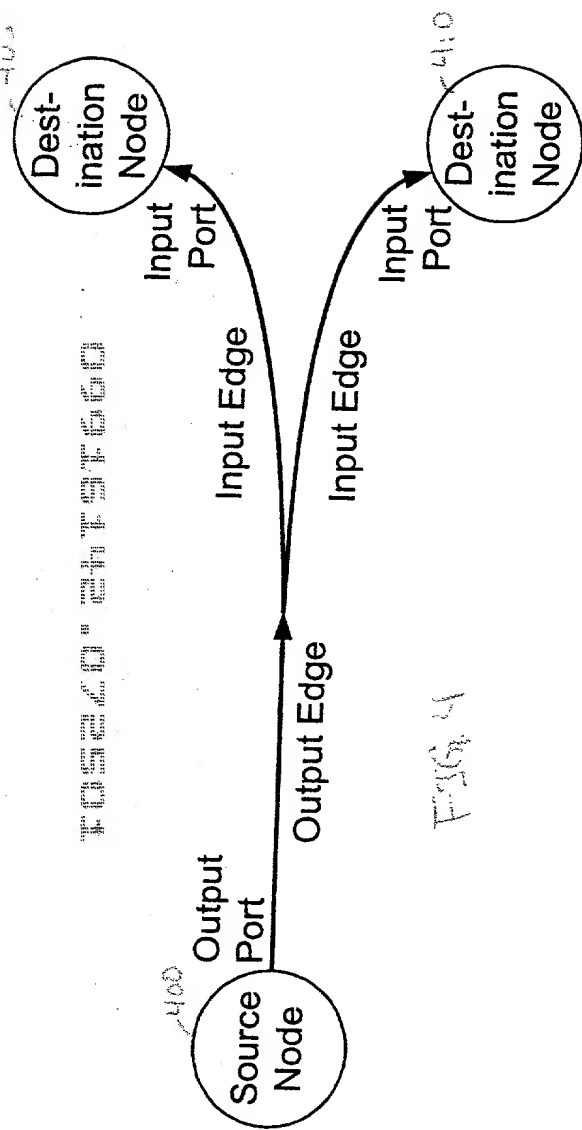


Figure 4